I claim:

1. A method of lowering blood glucose in a mammal, comprising orally administering a therapeutically effective amount of a composition comprising crystallized dextran microparticles and insulin to the mammal to lower blood glucose of the mammal.

2. The method of claim 1, wherein the composition comprises an aqueous suspension of crystallized dextran microparticles having an average diameter of about 0.5 to about 5 microns and the insulin.

3. The method of claim 2, wherein the method comprises orally administering the suspension to a human in need of lowering blood glucose.

4. A method of treating diabetes in a human in need thereof by orally administering the suspension of claim 2.

5. The method of claim 2, wherein the microparticles are porous microparticles which are crystallized prior to adding the insulin to the suspension, such that the insulin is located in contact with a surface of the microparticles or in pores of the microparticles.

6. The method of claim 2, wherein the therapeutically effective amount of insulin ranges from 10 to 2,500 UI of human recombinant insulin per 1 gram of the suspension.

7. The method of claim 2, wherein the blood glucose concentration in the mammal is lowered by at least 5 percent 60 minutes after administering the suspension to the mammal.

8. The method of claim 7, wherein the blood glucose concentration in the mammal is lowered by about 30 percent to about 60 percent 60 minutes after administering the suspension to the mammal.

9. The method of claim 2, wherein the blood glucose concentration in the mammal is lowered by at least 5 percent 30 minutes after administering the suspension to the mammal.

10. The method of claim 2, wherein the blood glucose concentration in the mammal is lowered by at least 10 percent during a period ranging from 30 minutes to 240 minutes after administering the suspension to the mammal.

11. The method of claim 2, wherein the blood glucose concentration in the mammal is lowered during a period ranging from 30 minutes to 120 minutes after administering the suspension to the mammal.

12. The method of claim 1, wherein:

the composition comprises a two phase composition comprising a dextran phase and a PEG phase;

the insulin is selectively partitioned in the PEG phase and the microparticles are selectively partitioned in the dextran phase; and

the composition comprises a structure comprising a dispersed PEG phase and a continuous dextran phase when the composition is present in the mammal body.

13. A method of lowering blood glucose in a mammal, comprising orally administering a composition comprising a therapeutically effective amount of insulin and a matrix material to the mammal to lower blood glucose of the mammal by at least 5 percent 60 minutes after administering the suspension to the mammal.

14. The method of claim 13, wherein the composition comprises an aqueous suspension and the matrix material comprises crystallized dextran microparticles having an average diameter of about 0.5 to about 5 microns.

15. The method of claim 14, wherein the microparticles are porous microparticles which are crystallized prior to adding the insulin to the suspension, such that the insulin is located in contact with a surface of the microparticles or in pores of the microparticles.

16. The method of claim 13, wherein the method comprises orally administering the composition to a human in need of lowering blood glucose.

17. A method of treating diabetes in a human in need thereof by orally administering the composition of claim 16.

18. The method of claim 13, wherein the therapeutically effective amount of insulin ranges from 10 to 2,500 UI of human recombinant insulin per 1 gram of suspension.

19. The method of claim 13, wherein the blood glucose concentration in the mammal is lowered by about 30 percent to about 60 percent 60 minutes after administering the composition to the mammal.

20. The method of claim 13, wherein the blood glucose concentration in the mammal is lowered by at least 5 percent 30 minutes after administering the composition to the mammal.

21. The method of claim 13, wherein the blood glucose concentration in the mammal is lowered by at least 10 percent during a period ranging from 30 minutes to 240 minutes after administering the composition to the mammal.

22. The method of claim 13, wherein the blood glucose concentration in the mammal is lowered during a period ranging from 30 minutes to 120 minutes after administering the composition to the mammal.

23. The method of claim 13, wherein the composition is in a form of a tablet or a capsule.

24. The method of claim 13, wherein:

the composition comprises a two phase composition comprising a dextran phase and a PEG phase;

the insulin is selectively partitioned in the PEG phase and the microparticles are selectively partitioned in the dextran phase; and

the composition comprises a structure comprising a dispersed PEG phase and a continuous dextran phase when the composition is present in the mammal body.

25. A method of administering a suspension to a mammal, comprising orally administering an aqueous suspension of crystallized dextran microparticles and a therapeutically effective amount of insulin to the mammal.

26. A dosed pharmaceutical composition, comprising crystallized dextran microparticles and a therapeutically effective amount of insulin, wherein the composition is dosed for oral administration to a human.

27. The composition of claim 26, wherein:

the crystallized dextran microparticles comprise dextran molecules held together by hydrogen bonds, Van Der Waals forces or ionic bonds and having substantially no covalent bonds between dextran molecules; and

the crystallized dextran microparticles are porous microparticles having an average diameter of about 0.5 to about 5 microns and, such that the insulin is located in contact with a surface of the microparticles or in pores of the microparticles.

28. The composition of claim 26, wherein the composition comprises an aqueous suspension of crystallized dextran microparticles and a therapeutically effective amount of insulin.

29. The composition of claim 26, wherein the composition is located in a vessel in an amount dosed for a single oral administration to a human.

30. The composition of claim 26, wherein the composition is located in a vessel with instruction printed on the vessel or enclosed with the vessel for oral dosage administration to a human.

31. The composition of claim 26, wherein the composition comprises a tablet comprising a pharmaceutically acceptable carrier medium, the crystallized dextran microparticles and the therapeutically effective amount of insulin.

32. The composition of claim 26, wherein the composition comprises a capsule comprising a pharmaceutically acceptable shell, the crystallized dextran microparticles and the therapeutically effective amount of insulin.

33. The composition of claim 26, wherein:

the composition comprises a two phase composition comprising a dextran phase and a PEG phase;

the insulin is selectively partitioned in the PEG phase and the microparticles are selectively partitioned in the dextran phase; and

the composition is adapted to form a structured suspension comprising a dispersed PEG phase and a continuous dextran phase.

34. A pharmaceutical composition kit, comprising:

an aqueous suspension of crystallized dextran microparticles and a therapeutically effective amount of insulin located in a vessel; and

instructions for oral administration of the composition to a human in need thereof.

35. A pharmaceutical kit, comprising:

a first means for orally administering to a mammal to lower blood glucose of the mammal by at least 30 percent 60 minutes after administering the suspension to the mammal; and

a storage vessel containing the first means.

36. A tablet comprising a pharmaceutically acceptable carrier medium, crystallized dextran microparticles and a therapeutically effective amount of insulin.

37. A capsule comprising a pharmaceutically acceptable shell, crystallized dextran microparticles and a therapeutically effective amount of insulin.

38. A method of making a dosed pharmaceutical composition, comprising:

providing crystallized dextran microparticles;

combining a therapeutically effective amount of insulin and the crystallized dextran microparticles in a solution after the microparticles have been crystallized to form a composition of insulin and crystallized dextran microparticles; and

dosing the composition for oral administration to a mammal.

39. The method of claim 38, wherein:

the composition comprises a flowable colloidal composition; and

the microparticles comprise crystallized dextran microparticles having an average diameter of 0.5 to 5 microns.

40. The method of claim 39, wherein:

the composition comprises a two phase composition comprising a dextran phase and a PEG phase;

the insulin is selectively partitioned in the PEG phase and the microparticles are selectively partitioned in the dextran phase; and

the composition comprises a structure comprising a dispersed PEG phase and a continuous dextran phase when the composition is present in the mammal body.